PATENT
Docket No.: **19603/2501 (CRF D-2375A)**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Beer et al.
Serial No.	:	09/770,693
Cnfrm. No.	:	6816
Filed	:	January 26, 2001
For	:	OOMYCETE-RESISTANT TRANSGENIC PLANTS BY VIRTUE OF PATHOGEN-INDUCED EXPRESSION OF A HETEROLOGOUS HYPERSENSITIVE RESPONSE ELICITOR

Examiner:
A. Kubelik

Art Unit:
1638

DECLARATION OF STEVEN V. BEER UNDER 37 CFR § 1.131

I, STEVEN V. BEER, hereby declare:

1. I am an inventor of the above-identified application.

2. I am presenting this declaration to demonstrate that the claimed subject matter was invented, in the United States, prior to February 1999. As demonstrated below, the claimed invention was reduced to practice prior to February 1999.

3. Attached hereto as Exhibit A is a copy of a disclosure document that I submitted to Cornell Research Foundation as part of an invention disclosure form. The disclosure document, characterized as a brief summary, is entitled: "Disease Resistant Transgenic Plants by Virtue of the *hrpN* Gene of *Erwinia amylovora*." This copy of the disclosure document is a what was received by Cornell Research Foundation following facsimile transmission by me. That this document was sent via facsimile transmission is evidenced by the header imprinted on top of the pages. The phone number 607-255-4471 is the number dedicated to the fax machine in the Cornell University Department of Plant Pathology. Although the date of the document has been redacted, the date of the disclosure document is prior to February 1999. The date imprinted in the header has also been redacted but it, too, is prior to February 1999.

4. The disclosure document attached as Exhibit A describes the formation of a chimeric gene that includes the potato *prp1*-1 promoter, *hrpN* coding sequence (from *Erwinia amylovora*), and the 3' transcription terminator of the nopaline synthesis gene of

Agrobacterium tumefaciens. In addition, an alternative embodiment of the chimeric gene included the signal sequence of tobacco PR1b, which was cloned between the promoter and the *hrpN* coding sequence.

5. The different chimeric genes were introduced into disarmed *Agrobacterium tumefaciens* strain GV3101 and then, using standard Arabidopsis vacuum infiltration transformation procedures, transformed into wild-type Arabidopsis ecotype Col-0. Three different Arabidopsis thaliana lines were obtained.

6. Plants were inoculated with *Peronospora parasitica* strain Noco, an oomycete, and then assessed for disease on a daily basis for three weeks. All control plants, including wild-type Col-0 and null transformants, developed sporulating lesions by Day 9 post-inoculation. Two of the *hrpN*-containing plants developed sporulating lesions by Day 14 and one only showed sporulating lesions beginning on Day 16. These results demonstrate that the *hrpN* coding sequence under control of the *prp1*-1 promoter can be effective to provide partial resistance against oomycete infiltration.

7. In addition to the above results, the document attached as Exhibit A also indicates that the same constructs were being used to produce transgenic apple, tomatoes, and potatoes with the assistance of other Cornell University researchers specializing in those particular plants. The document also indicates that apple trees will be evaluated for resistance to the oomycete *Phytophthora cactorum* and tomato and potato plants will be evaluated for resistance to the oomycete *Phytophthora infestans* (which causes late blight).

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 30 July 03

Steven V. Beer